Problem solving and practice: C++ Assignment:1

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Problem 1

```
#include<iostream>
using namespace std;

class Item { // class Item
private: // Declare private members
    int code, price;
    string name;

public:
    void set_Product(int a, int b, string n) { //set_Product functio
n definition
        code = a; // Put a in the code
        price = b; // Put b in the price
        name = n; // Put n in the name
    }
    void print_product() { // print_product function definition
        cout << code << "\t\t" << name << "\t\t" << price << endl;
    }
    int price_value(int c) { // price_value function definition
        if(c == code) // If c and code match
            return price; //return price value
    }
};

int main() {
    Item it[4]; // //Create Array object
    int code, quant, value = 0;

    //Product data input
    it[0].set_Product(1, 5000, "shampoo");
    it[1].set_Product(2, 1000, "soap");
    it[2].set_Product(3, 2000, "Beer");
```

```
    it[3].set_Product(4, 2500, "Milk");

    cout << "Home Plus" << endl;
    cout << "Code\t\tItem\t\tRate_Won" << endl;

    //Product list output
    for (int i = 0; i < 4; i++)
        it[i].print_product();

    cout << "Enter the code:";
    cin >> code; //input product code

    cout << "Enter the quantity:";
    cin >> quant; //input quantity

    value = it->price_value(code); //Put return value in the value

    cout << fixed;
    cout.precision(6); //Output to 6 decimal places

    //Total price output
    cout << "Total price is: " << value * (double)quant << endl;

    system("pause");
    return 0;
}
```

Declares item class. Within class, private declared member variables and public defined functions.

The set_Product function is declared to receive and store factors.

The print_product function was output to fit the line using \t.

The price_value function is declared to receive code and return price when matched.

The main function declared Array object for Class. It is designed to put data in each array and to print the quantity multiplied by the quantity and the price of the product that matches the code.

Problem2

```
#include<iostream>
using namespace std;

class student {
    //by default it is private
    string name;
    int student_ID;
public:
    void getdata(); //get data
    void putdata(); //put data
};

//define member function outside the class
void student::getdata() {
    cout << "Enter the name of student and his/her ID:";
    cin >> name >> student_ID; //input name and student_ID
}

//define member function outside the class
void student::putdata() {
    //output
    cout << "student name: " << name << endl;
    cout << "student ID: " << student_ID << endl;
}

int main() {
    student st; //Create object
    st.getdata(); //object call the function
    st.putdata(); //object call the function
    system("pause");
    return 0;
}
```

Student class declared. We declared the default variable in class and the getdata, putdata function in public.
The getdata function is designed to input data and putdata is designed to output data.
The main function is designed to call a function.

Problem3

```
#include<iostream>
using namespace std;

class big {
    //by default it is private
    int n1, n2;
public:
    void input() { //input function definition
        cout << "Enter two number: ";
        cin >> n1 >> n2;
    }
    void largest() { //largest function definition
        cout << "largest number: " << ((n1 > n2) ? n1 : n2) << endl;
 //Output by comparison
    }
};

int main() {
    big b; // Create object
    b.input(); //object call the function
    b.largest(); //object call the function
    system("pause");
    return 0;
}
```

You have declared a big class. As shown in question 2, we declared the default variable and defined input and target functions in private.
The main function declared object of big class and called input, target function.

Problem4

```
#include<iostream>
using namespace std;
class student {
    //by default it is private
    string name;
    int student_ID, s1, s2, s3, s4;
    float per;
public:
    void get_details(); //get_details
    void put_details(); //put_details
};

//define member function outside the class
void student::get_details() {
    // input/output name
    cout << "Name: ";
    cin >> name;
    // input/output student_ID
    cout << "ID: ";
    cin >> student_ID;
    // input/output s1
    cout << "Subject1: ";
    cin >> s1;
    // input/output s2
    cout << "Subject2: ";
    cin >> s2;
    // input/output s3
    cout << "Subject3: ";
    cin >> s3;
    // input/output s4
    cout << "Subject4: ";
    cin >> s4;
}
//define member function outside the class
void student::put_details() {
    //output
    cout << "Name: " << name << endl;
    cout << "ID: " << student_ID << endl;
    cout << "Subject1: " << s1 << endl;
```

```
    cout << "Subject2: " << s2 << endl;
    cout << "Subject3: " << s3 << endl;
    cout << "Subject4: " << s4 << endl;
    per = ((double)(s1 + s2 + s3 + s4) / 400.0) * 100; //percentage
as float type
    cout << "Total Percentage: " << per << "%" <<endl;
}

int main() {
    student st; //Create object
    st.get_details(); //object call the function
    st.put_details(); //object call the function
    system("pause");
    return 0;
}
```

First, I declared a student class. I declared a default variable in it.

We declared the default variable in class and the get_details, put_details function in public.

The get_details function is inputted, the put_details function outputs, and the per variable is casted in double and designed to be output.
The main function declares class object and calls the get_details and put_details functions.

Problem5

```
#include<iostream>
using namespace std;
class student {
    //by default it is private
    string name;
    int student_ID, number;
public:
    void getdata(); //get data
    void putdata(); //put data
};
//define member function outside the class
void student::getdata() {
    // input/output student_number
    cout << "student:";
    cin >> number;
    // input/output name
    cout << "Name:";
    cin >> name;
    // input/output student_ID
    cout << "ID:";
    cin >> student_ID;
}
//define member function outside the class
void student::putdata() {
    //output
    cout << "Student:" << number << endl;
    cout << "Name:" << name << endl;
    cout << "Student ID:" << student_ID << endl;
}

int main() {
    student st[5]; //Create Array object
    for (int i = 0; i < 5; i++) //Call the getdata function to input
 five times over.
        st[i].getdata();

    cout << "\n****Output****" << endl;
```

```
    for (int i = 0; i < 5; i++) //Call the getdata function to outpu
t five times over.
        st[i].putdata();

    system("pause");
    return 0;
}
```

First, I declared a student class.

We declared the default variable in class and the getdata, putdata function in public.

Similarly, you are designed to input the getdata function and output the putdata function.
Array object declared for class in main function.
Call the getdata function 5 times for each array, similarly call the putdata function 5 times.